

**Abstract of the Disclosure**

In a WDM optical communication system, at least one optical tunable filter is placed along an optical fiber provided as an optical transmission path between a transmitting station and a receiving station. The optical tunable filter has a controllable transmission factor versus wavelength characteristic. In the receiving station, the transmission characteristics (for example, optical signal to noise ratios and Q factors) for optical signals of different wavelengths propagated over the optical fiber are measured. The measurements are sent to the transmitting station. The transmitting station then properly controls both the amounts of pre-emphasis in the transmitting station and the wavelength characteristic of the optical filter on the basis of the measurements to thereby equalize the transmission characteristics for the optical signals. In this case, it is also possible to calculate the optimum proportion of allocation of control between the pre-emphasis control and the filter control and then perform the pre-emphasis control and the filter control according to the optimum proportion of allocation. In this control, the main controller may be either the transmitting station or the receiving station.